

NEWS FROM THE MADRAS SNAKE PARK
AND MADRAS CROCODILE BANK

The pair of adult mugger at the Snake Park bred successfully this year and six hatched out of the nest of ten eggs.

The Chief Conservator of Forests, Goa, visited the Snake Park in order to obtain details of its maintenance and development; these will be of use in planning the projected snake park that is to be constructed at Panjim.

The Snake Park participated in the symposium on Environment and Pollution at the Regional Labour Institute on June 5th and the Director chaired a Seminar on the role of public opinion in environmental matters.

With the kind permission of the Government, the adult entrance fee for the Snake Park has been raised to 50 paise. The fee for children remains 25 paise.

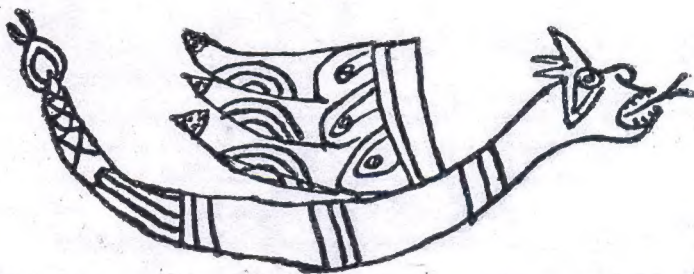
From middle June to the end of July the Director was in the Andaman Islands with Mr Rajesh Bedi, the wildlife photographer.

On August 12th a seminar on snakebite was held at the Madras Medical College. It was convened by the Indian Pharmacological Society, Orient Pharme Ltd and the Madras Snake Park. A report on the seminar is included on page 3 of this issue.

4 mugger nests were laid at the Madras Crocodile Bank this year, and the hatching percentages for each were: 100%, 100%, 30% and 12.5%.

The Thiruvannmiyur Panchayat Board very kindly agreed to sell an old windmill to the Madras Snake Park. This is being assembled at the Madras Crocodile Bank and will be of great help for water pumping.

The Wildlife and Nature Protection Society of Ceylon has invited the Director and his wife to undertake a survey of the crocodiles C. palustris and C. porosus in Sri Lanka. Work is expected to begin around the 15th of September.



HERP NEWS

Snakebite Study in Burma

During April, a two week study on snakebite was carried out by a team of health officials headed by Dr Maung Maung Aye, in the townships of Mandalay, Monywa, Shwebo and Ye-oo. Aspects of the study included venomous species prevalent, effects of their venoms and treatment. Papers resulting from the study are to be submitted to the Ministry of Health, urging more effective measures in prevention and treatment of snakebite.

Snakebite Hazard in Upper Burma

Dr Than Win of Myaung writes in "The Working People's Daily" of 6th April '77 that during 1976, 60 snakebite patients were admitted to the township hospital. Out of these, only two succumbed; the mortality rate was therefore 3.33%. This number does not include patients treated with country remedies or by quacks. 96% of the bites were by vipers and only 1.5% by cobras. Dr Mg Mg Aye in his article "Some Experience in the Management of Snakebite" in Vol 20 No 1 of the Burma Medical Journal suggests the wearing of long boots as a preventive measure. These would not hamper work, especially in the dry regions of Upper Burma.

Mugger Released at Ethipothala Falls (A.P.)

Andhra Pradesh became the first state in the country to release captive reared crocodiles in selected wild habitats, when the Forest Department sponsored, Government of India/UNDP/FAO aided crocodile project released four mugger (*C. palustris*) in the Ethipothala Falls on February 8th, '77. Ethipothala Falls (20 kms below Nagarjuna Sagar Dam) on the Chandravanka tributary of the Krishna River was a mugger habitat a decade ago, and is included in a 100 km sanctuary being established by the Andhra Pradesh Forest Department. The four released mugger had been reared at the Nehru Zoological Park and were 1.20 metres in length.

The Andhra Pradesh Crocodile Scheme plans to include Mugger Crocodile Conservation Centres at (i) Lanja Modgu Crocodile Sanctuary on the Godavari River 150 miles north-east of Hyderabad, (ii) Nagarjuna Sagar Ethipothala on the Krishna River basin, and (iii) Pakhal Lake in the Pakhal Wildlife Sanctuary. Nehru Zoological Park, Hyderabad will act as the Central Breeding Station, where hatchlings will be reared from initially wild-laid, and later captive laid eggs for subsequent release in selected habitats. Similar conservation measures are being extended for the estuarine crocodile (*C. porosus*).

Gharial Breeding Loan Scrapped

The adult male gharial which the Frankfurt Zoological Garden was willing to place at the disposal of the Madras Crocodile Bank Trust and World Wildlife Fund-India had to be refused by the Bank on account of the Government of India feeling that the animal should be used in the Government crocodile project. We appreciate this view and hope that a substantial breeding nucleus can be established in the country.

2.W. ✓

FIRST SNAKEBITE SEMINAR IN INDIA

A day long seminar, "The Diagnosis and Treatment of Snakebite" convened by the Indian Pharmacological Society, Orient Pharma Ltd and the Madras Snake Park Trust, was held at the Madras Medical College hall on August 12th, '77. Over 200 medical students, doctors, professors and scientists, some from other cities, attended the meeting and the long neglected and serious problem of snakebite in India was discussed in detail.

Session 1, Epidemiology and Fundamental Knowledge about Snakes and Venoms, was chaired by Dr C N Sowmini, superintendent of the Govt General Hospital, Madras. Speakers were Dr C A K Shanmugan, Director of Public Health and Preventive Medicine (retd) on Epidemiology of Snakebites in Tamil Nadu; Romulus Whitaker, Director of the Madras Snake Park, on Snakes Responsible and their Natural History; and Dr B B Gaitonde, Director, Haffkine Institute, Bombay, on Venoms and Antivenoms.

Session 11, chaired by Dr K V Murthy, Director, King Institute, covered First Aid and Medical Treatment of Snakebite. Speakers were Dr R N Banerjee, Consultant in Medicine and Chief of the Department of Haematology and Nuclear Medicine, Safdarjang Hospital, New Delhi on Recent Advances in the Management of Poisonous Snakebites; and Dr M R Nene, a general practitioner from Ratnagiri District, Maharashtra, on Some Aspects of Saw-scaled Viper (Echis carinatus) bite.

After lunch, during the Valedictory Session, Dr Gaitonde summarized the recommendations put forward by participants- that (a) medical education be re-oriented toward treatment of snakebites; (b) charts, leaflets etc be prepared for use in rural clinics and Public Health Centres; (c) health education be extended to non-medical persons to minimize snakebites; (d) data collection and retrieval proformas be circulated to PHCs etc; (e) production of antivenom be stepped up; (f) paramedics be trained in the use of antivenom; (g) more research be carried out on venoms and (h) the possibility of producing antivenoms for sea snakes be investigated.

The following resolutions were made and adopted by the meeting:
To prepare and finalize a paper for rush treatment of venomous bites for hospitals;
To prepare and finalize a 1-2 week course on training in handling snakebites for officers in charge of Public Health Centres;
To prepare easy to follow charts for display in rural areas and dispensaries facilitating identification of venomous snakes, treatment;
To train paramedical staff, social workers etc in snakebite treatment and also to supply the rural population with antivenom;
To encourage and institute establishments like the Madras Snake Park in other cities, thus spreading education on snakes and snakebite, and furthering "antivenom consciousness";
To formulate a screening programme for bites of scorpions, etc and
To see that excellent hospital statistics are maintained.

Mr P Murrari, Commissioner, Dept of Health and Family Welfare, gave the gathering his personal assurance that his department would act on the seminar's recommendations with seriousness and urgency and that in reducing snakebite deaths no stone would be left unturned- even if there was a snake under it!

INTRODUCING THE IRULAS

Just before the breaking of the monsoon last year we took up Rajamani on his promise to take us termite hunting in the scrub jungle around Madras.

We set out one evening toward a termite mound he claimed was "ripe"; that is, the termites were waiting for the first rains before emerging from their mud prison. Rajamani pointed to several other mounds on the way, telling us the species (each species constructs a distinctive mound) and a bit about their natural history.

Reaching the right one, he and his wife tied an old sari along the bushes in order to arrest the strong southerly breeze. Next, a tin box was inserted in a hole which Rajamani dug a metre from the termite hill. Over the opening of the tin he placed two twigs, making a kind of bridge over the gap; and on this a lighted oil lamp.

Rajamani then roasted a brown seed ("eechel kote" in Tamil), rather smaller than a mango seed, over the lamp, sniffing it from time to time. It was then crushed on a stone and powdered— and the smell was pronounced to be perfect (resembling that of the earth after the first rains).

Before launching once more on this ancient Irula method of hunting termites, Rajamani said his pre-hunt prayer, and began to circle the hill. A sudden whirring sound broke the silence of the night; Rajamani walked round and round the mound, imitating the swarming of termites by vibrating his hips. Now and then he would sing snatches of hunting songs: "The dove is out And the rains come down, Come out, come out, come out!" At the same time he sprinkled the powdered seed over the termite mound.

Some minutes passed and he finally stopped to peer into the minute holes in the hill and sat down near it. Later he signalled us and we went up single file to peer past his pointing finger; some little activity was discernible in the holes. What we could see, Rajamani explained, were the "sel", or workers, who were not fully convinced and we were holding the mature, winged termites back.

Suddenly the ground was a mass of little aeroplanes, all taxiing toward the light in a hurried scramble. Hundreds and thousands of termites poured out of the holes. The thin bridge did them in, and they fell into the trap (the tin box). Soon this was full and had to be emptied into a gunny sack. By the end of the hunt Rajamani and his wife had two sackfuls of active, buzzing protein. These would be swung up and down to separate the wings, and the termites would be roasted and spiced, to make a delicious snack.

Rajamani couldn't wait however and ate the termites live, popping them rapidly into his mouth so that the wings remained on one side, to be spat out when time permitted. This protein jolt was a pleasant "high" he said, and termites tasted nutty. We thought to try and nonchalantly ate a few; but the stinging bites on our tongues brought an end to this adventure. Eating live termites is an art, like catching a cobra by the tail.

While the party was in full swing a black scorpion came along and presenting his back to us, started to eat. Termites scurrying along were waylaid and grabbed with startling agility. Later two frogs (Rana breviceps) joined us and they too sat down to meat. When we got up to go, they were painfully waddling away, almost falling over, turning their bloated bodies away from the much dwindled stream of termites.

NEWSPAPER CLIPPINGS

Battle with Python

Dacca, July 2.- Villagers in North West Bangladesh fought a tug-of-war last night with a monster Python which swallowed a 25-year-old man up to the waist. Police said today the man was eventually pulled out of the python's jaws, but both he and the ten-metre snake died in the struggle (Sunday Standard, 3rd July, '77).

Rookery of Turtles in Orissa Discovered

Bhubaneswar, Nov. 9.- A rookery of sea turtles, believed to be the largest in the world, has been discovered at Bhitar Kanika in Cuttack District in Orissa.

Following the discovery, the Orissa government has submitted a scheme to the Centre for the conservation of the valuable reptiles at Bhitar Kanika and Astarang, along the sea-shore and the Chilka Lake. The species can be a source of earning foreign exchange for the state. According to Dr H R Bustard, FAO consultant to the crocodile conservation programme in India, the discovery was made in 1974, while he was making a countrywide survey of crocodilians.

Dr Bustard told Samachar that he had identified the species as the Pacific or Olive Ridley (Lepidochelys olivacea).

This year, he said, research had started and during a three-week period in February 158,171 nesting female turtles were marked.

Dr Bustard said until the work started this year, 1.5 to two million eggs were taken to Calcutta annually under license for human consumption and export.

Now following Dr Bustard's advice, the Orissa government had completely banned business in turtle eggs and special arrangements had been made to protect the eggs and nesting females (Samachar, Nov. 10th, '77).

Huge Turtle Swims Ashore

Visakhapatnam, May 19.- A six-foot long turtle....swam ashore near Pithavaram quarters of Andhra University during (the) early hours of today and it was taken to Indira Gandhi Zoological Park and put in (a) salt water tank.

The turtle, which might weigh a little less than a ton, was first noticed on the beach road by Dr C V Raghavulu....during his morning walk.

Dr Krishna Murthy, officer in charge of Central Marine Fisheries research unit who examined the turtle said it was a female....which came to shore to lay eggs. He said that it would not survive in fresh water. The turtle crossed the road by slowly crawling with its flippers, with a view to re-entering the sea. An iron rod was fixed in the sand and it was tied to it with a rope (The Hindu, May 20th, '76)

7 Die After Consuming Turtle Meat

Tirunelveli, Aug. 7.- Seven persons, including six children in the age group of eight months to seven years, died at Manapad, about 75 kms from here, after consuming turtle meat. Tiruchendur police told Samachar on trunk telephone this evening that more than 80 persons consumed turtle meat on Aug. 3rd. They developed some symptoms of poison and were admitted to Udankudi, Tuticorin, Manapad and various other hospitals nearby (The Hindu, 8th August, '77).

NEWS FROM PAKISTAN

Green Turtle in soup: skins in hundreds seized

The giant green turtles, *Chelonia mydas*, still found in the 200 miles long Arabian Sea coast from Karachi to Mekran, are being destroyed for money despite an international appeal to protect the endangered species. Informed by Game Watcher Ghulam Husain Jaball, the District Game Warden organised a raid on a godown on the West Wharf where several hundred costly skins of this rare reptile were found packed in gunny bags ready for export as frog skins.

Since there is a ban on the killing or netting of green turtle(s), the businessman was arrested....and ordered to pay the maximum penalty-Rs 5,000....for violating the Sind Wild Life Protection Ordinance 1972. The sea coast, especially along the Hawkesbay, Sandspit, Clifton and Buleji beaches, has been one of the natural nurseries of the species. They visit these beaches on moon-lit nights in the months of September and October for laying eggs.

There is great demand for green turtles in Europe, America and the Far East markets. Everything of the giant turtle is considered precious. Its shell-over 4 feet in length- is used for making expensive ornaments, considered status symbol(s) by fashionable ladies in Europe and America. Its fat is used in the preparation of cosmetics and high quality polish for expensive cars. Moreover, green turtle soup is a delicacy reserved for the wealthy in exclusive hotels of Europe, America and the Far East (Japan, in particular).

Adult green turtles, their weight ranging from 600 lbs to 1000 lbs, are often four to six feet long, from the snout to the tip of the tail. The powerful forelimbs have a stretch of 10 feet. There is no marked difference in the size of the two sexes, but the males can easily be recognized from their long, thick tails. Their name "green" is derived from the colour of their fat. Their shell is olive-green, brownish, and in cases even bluish-black.

The species has a placid disposition, more than other sea turtles, and does not attack anyone. Green turtles, are therefore easily caught or killed when they land on the beaches, looking like prehistoric monsters.. A group of tourists, while visiting Karachi's beaches in 1972, came across scores of dead green turtles in Hawkesbay, with many more shells scattered about in the Sandspit area. These tourists, conscious of the danger to the species, wrote a letter to the World Wildlife Fund authorities appealing for protection to the reptile....They noted that the turtle population had been reduced to the point where it was threatened with extinction.

The World Wildlife Fund authorities approached the Government of Pakistan seeking protection for this rare species. The Sind Wild Life Management Board took prompt action and immediately posted Game Watchers along the beaches in November 1972. It was also declared a "protected animal" under the Sind Wild Life Protection Ordinance.

But greedy exporters seem not to have remained idle even after the ban. Green turtles have already disappeared from parts of the world. In order to protect them the Marine Turtle Specialist Group of the IUCN.. expressed concern over its disappearance from several countries as was reported in the World Wildlife Fund Yearbook 1969; and hence the worldwide appeal for its protection.

Some countries, including Malaysia, Madagascar, and Australia, have enacted laws for their protection (Hamdan Amjad Ali, Karachi, 12.12.76).

CROCODILES IN SRI LANKA

The two species of crocodiles found in Sri Lanka, Crocodylus palustris and C. porosus have never been in any danger of extermination. They now enjoy total protection and have increased in numbers in recent years. Illegal export of skins has also been controlled.

Today a very few crocodiles are killed; those taken are mostly stray f/animals which/all foul of intensified fishing in lakes and lagoons. Smaller specimens may be taken alive and sold to the pet trade; almost all these end up in the Zoological Gardens near Colombo.

I live about 13 miles from the city, and receive up to 50 small crocodiles every year from fishermen. All these are C. porosus and are caught less than three miles from Ja-Ela, or seven miles from the International Airport! They are 12-40" in length; larger specimens are generally catch by the locals who relish the meat from the tail region.

That breeding size crocodiles live very close to Ja-Ela is evident. A very large swamp at the south end of the Negombo lagoon holds a minimum of 50 pairs and 10 ft specimens are not uncommon. They are best seen at night with a bright light; by day they hide in dense thickets of swamp flora, mainly Lagenandra.

With the increasing population spilling into crocodile habitat and using lakes and rivers where the animals live, encounters are inevitable and "attacks"- mistaken identity- by C. porosus do take place. In mid '76 a young man was bitten on his right calf by a 7 footer while he was brushing his teeth in a creek at Kandana, less than 12 miles from Colombo. Friends chased the crocodile away and the victim received minor injuries.

The other species, C. palustris, is found in inland lakes and reservoirs in the more forested areas and is no less common than C. porosus. Practically every tank or irrigation reservoir in the North Central Province contains a few; the larger bodies of water harbour many more.

With the introduction of the fast breeding Tilapia mossambica and the subsequent increase in piscivorous birds, crocodiles, particularly under protection, seem to have increased accordingly.

The two main sanctuaries of Sri Lanka, Wilpattu and Ruhunu or Yala, harbour good crocodile populations. Except during drought conditions, viewing them by day is difficult. But at the height of the drought many crocodiles, especially C. palustris leave the dwindling water bodies and retire to thick jungle. I have seen several C. palustris by night in dry jungle, miles from water.

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Shell-Haven
18 Tudella Kurunwatte
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SOME OBSERVATIONS ON THE DEVELOPMENT OF ELAPHE HELENA
(DAUDIN) EGGS

Little data is available on the breeding of the Trinket Snake (Elaphe helena) in the Republic of Sri Lanka (Ceylon). The following observations were made in the author's reptilium.

Early observations

Courting: The male was seen rubbing its snout and chin along the back and flanks of the female; he then placed his body over that of the female's and made rhythmic contractions. This was observed in December 1969 and February 1970.

Table 1 summarizes the eggs laid by various dames captured from Peradeniya, Central Province (alt. 480 mts). Each measured over 600 mm.

Table 1

<u>Date</u>	<u>No of eggs</u>	<u>Remarks</u>
24.12.'69	4	Not weighed & moistened. Shrivelled in 4 days.
22.1.'70	4	----- do -----
31.3.'70	4	Weighted, spoilt after a week.*

female

*Before laying, the/~~xxxx~~ was seen in the basin of water in the cage. The eggs were laid in water, and were larger in size than those of the previous occasions. Weights of these eggs were 14.28 gms, 13.15 gms, 12.60 gms and 12.35 gms.

Recent observations

A gravid, 620 mm E.helena was captured in early September '76 in Gampola, Central Province (480 mts) near a paddy field. On 18th September at 6 am ~~xxxx~~ ~~xxxx~~ was seen to be restless and, that she/ evening, started laying. Time taken to lay each egg was approximately 20 minutes (timed from its first appearance to expulsion). There was an interval of an hour between laying of each egg. Eggs were elongate with fairly round poles, and measured 58 mm and 19mm in length and breadth.

There were three eggs in the clutch and these were numbered 1, 2 and 3. They were moistened every other day and the container heated with a 60 watt bulb twice a week for five minutes. Hatching took 96 days; during this period the eggs were weighed 13 times at irregular intervals (table 11).

Table 11 (weights of eggs in gms)

<u>Date weighed</u>	<u>No 1</u>	<u>No 2</u>	<u>No 3</u>
18.9.'76	10.84	9.90	10.30
11.10.'76	11.11	10.62	11.30
25.10.'76	11.58	10.70	11.61
1.11.'76	11.56	10.70	11.80
3.11.'76	11.53	10.58	11.78
8.11.'76	11.53	10.53	11.97
11.11.'76	10.89	9.95	11.45
17.11.'76	11.70	10.40	12.10
23.11.'76	11.90	10.24	12.24
29.11.'76	12.35	-	12.82
7.12.'76	12.98	-	13.30
13.12.'76	13.10	-	13.77
20.12.'76	12.90	-	13.72

(8)

.....continued

A gradual decrease in egg weights was observed from 1st November. On 11th November the eggs were slightly shrivelled; hence they were well moistened and in two days assumed their former shape. A marked swelling in the centre of the eggs was observed during the last week of December. Egg No 2 was dissected after 73 days; the embryo was well developed.

Egg No 1 was cracked on 19th December; as there was no change till the 22nd it was opened and the hatchling emerged. The umbilical stalk was dropped the following day. The hatchling measured 235 mm.

On 22nd December (incubation 96 days) egg No 3 started to hatch. The snake emerged next morning at 6.45 am. It weighed 7.1 gms and the length was 260 mm. The hatchlings are being reared on beef and geckos.

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RARE SIGHTING OF DUGONGS (DUGONG DUGONG)

During a week's stay in the Point Calimere Sanctuary from 16th to 23rd April this year we were lucky in being able to observe a group of dugongs for fairly long periods. On the first two mornings, walking east from the old rest house, 16 dugongs were seen from about 6.45 am to 8.15 am. The dugongs, of different sizes, the largest being 8-9 ft long, were in two straight lines, half a furlong from the beach where we stood. For the most part only the upper part of the body was visible; but occasionally, one would stand up (group fishing?).

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GROWTH RATE OF MUGGER (CROCODYLUS PALUSTRIS)

A mugger (Crocodylus palustris) measuring about 170 cms escaped from Nandankanan Biological Park on 10.5.'65. It was caught three years and four months later in a nearby lake by local inhabitants, and unfortunately died due to injuries received during capture. It measured 220 cms. The mugger therefore grew 50 cms during this period.

L N Acharjyo and S Mohapatra
Nandankanan Biological Park
P O Barang
Dist Cuttack
Orissa

(A 1975 hatchling at the Madras Crocodile Bank grew from 25 cms to 1.7 metres in 24 months-Ed).

REPTILE SKIN EXPORTING FROM CALCUTTA

(This extract about the illegal skin trade is from an article by John Nichol in the April-July 1975 issue of "Compassion").

Ibrahim's home was a small wattle and daub, one roomed house behind which was a tiny yard in which his animals were housed. Unfortunately all his pythons were too small, and seeing that he was going to lose a sale, Ibrahim mentioned that the day before he had sold all the large pythons and monitor lizards that he had to a skin dealer, but that if we were to visit him immediately, we might well arrive in time to obtain one whilst it was still alive, so we set off once more for Calcutta, and in time turned west through Alipore until finally we arrived at a little village named Chandi Tala. When the road ran out we parked the car and plodded off down a track between neat rows of pots that had been put out to dry in the sun before being fired. We arrived in time at a broken-down green door set in a low brick wall. My companion hammered on the ancient wood....a sound that provoked a hysterical barking from several dogs on the other side. This continued until a curse and a yelp stopped it in mid-syllable, and a moment later the door was opened by a smiling young man named Kasim who bid us enter.

I was in a walled yard about as big as a suburban garden. On one side was a low shed which contained as I discovered when Kasim showed us around, the cages in which the live reptiles together with the empty crates for exporting their hides, heaps of skins and various bits of equipment. Kasim and his wife also lived in a separate room at one end.

As we walked back across the parched grass to where three men were working at the other end, I noticed a pile of boxes labelled and ready for dispatch that day. There must have been over twenty of them, each about a two foot cube, so there must have been an awful lot of skins going out. Alongside the crates were a number of skins draped over two bamboos fixed to a couple of trees. The skins were all either python (Python molurus) or Monitor Lizard (Varanus salvator or bengalensis). The smallest were about two metres long though there were many considerably larger, and altogether there must have been two or three hundred.

At the far end of the garden a fire was burning, giving off a foul stench that even I with my virtually non-existent sense of smell found offensive. I noticed that periodically one of the dogs would pull something off it to eat, and on close inspection, the fire could be seen to consist for the most part of reptile remains.

I've seen so many acts of cruelty practised in the tropics on animals that I've become pretty hardened to them, but as I watched the three men working on the skinning, even I felt disgusted. As I watched, one of the men tipped out a sack of python onto the grass and grabbed it behind the head. Then as he held the ventral surface

of the head against the tree about level with his face, another man placed a large nail against the top of the skull and drove it through the head into the tree with a hammer. As the snake thrashed about, the first man placed his foot on the tail on the ground and slit the skin right down one side with a knife and then repeated the operation on the other. A quick cut across the neck and with an audible hiss the skin was torn right off and thrown to another man to clean off morsels of fat and muscular tissue still adhering. The snake was obviously still alive. The muscular movements were perfectly co-ordinated, and the tongue still probed the air for particles of scent. I picked up a half-brick and smashed the snake's skull. As anyone who knows anything about reptiles can tell you they are capable of standing considerable mutilation before dying. Also the head of the snake is very large compared with the size of the brain, which makes it comparatively easy to insert a nail without killing the animal.

I asked the men why they performed the work in this fashion, and they replied that they had to have the head anchored since otherwise it makes the actual peeling off the skin very difficult, and what way was there of killing the reptiles without damaging the skin. This was certainly a valid point as snakes are difficult to kill, so I asked why they did not simply administer a lethal injection. My informant shrugged and suggested that I ask Mr Mukherjee, the proprietor of the business, but thought that the answer was probably the cost involved.

The men showed no qualms or remorse about this work, and I expected none. They merely worked quickly and efficiently as though on a factory production line. I asked how long a snake could remain alive after being impaled to a tree. After some discussion the men agreed that the longest they remembered was three days. Later I saw one of the dogs reach up and drag a skinned snake from a tree, tearing the nail through the head. He ate it, and although I am sure that the particular specimen was dead, it could well happen that snakes consumed in this way wouldn't be.

As we talked, the men carried on working. They were only doing snakes that day but assured me that lizards were treated in the same way, although it was the skin from the belly that was required in their case.

SUBSCRIPTIONS FOR 1978

Dr Salim Ali	Mr Peter Jackson
Dr G H Balazs	Dr R C Goris
Mr Charles Beck	Mr R E Hawkins
Mr Sheldon Campbell	Mr H Holck-Larsen
Mr Zafar Futchally	Mr Thomas A Huff
Miss Shana Futchally	Dr Barry Hughes
Dr D Lieberman	

THE GULF OF MANNAR ISLANDS

Between 1st and 22nd March '77 Mr Satish Bhaskar, field officer of the Madras Snake Park, joined a survey team from the Central Marine Fisheries Research Institute on a visit to several islands in the Gulf of Mannar. He wished to learn about the status of dugongs and sea turtles in this area. Some extracts from his Report:

3rd March: Left for Krusadai from Mandapam Camp aboard the "Chippu". Krusadai (1 mile by half a mile) is one of the four islands in the vicinity of Pamban on Rameshwaram Island to be protected by Govt. The others are Pullivasal, Pulli and Shingle. Most of the islands in the Gulf of Mannar have live coral reefs encircling them partly or fully; the width of these coral fringes tends to be greater on the seaward than on the mainland side. Very shallow reefs consisting mainly of coral stone (coral that has been compacted into stone over the acons) often form a barrier to the approach of sea craft of any respectable size. The Krusadai beach is narrow (10 metres), of sand and shingle. A green turtle (*Chelonia mydas*) carapace lay on the beach. Nesting on the island does not occur frequently - possible reasons for this may include the narrowness of the sandy beaches, the presence of the reefs, and the disturbance created by fishing launches. The only species confirmed to nest on the islands is the Olive Ridleys (*Lepidochelys olivacea*). The following species are known to exist in the area, but the leatherback is very rare: green, Ridley, hawksbill, loggerhead and leatherback. On the way back to Mandapam the helmsman saw a dugong, briefly.

6th March: Went to Hare Island, which is about 5 miles long and averages half a mile in width. Being a private island (a gift of the Raja of Ramnad to the family of the present owner) we had to obtain prior permission for landing on it. The marine fauna of Hare Island seems to be less disturbed and exploited than that of the other islands, because fishermen are not allowed to ply their nets here. The 50 or so people who live on Hare Island carry staffs while wading, to detect quick sand. A skeleton of a whale lay on the beach and on the other end I saw a huge cycloid scale 8" in diameter. A Ridley carapace, a green carapace and a hawksbill carcass lay at different spots on the beach. While I was walking round, members of the survey team saw a dugong feeding for an hour in shallow water a mere 50 ft from the anchored "Chippu". Later we saw a Ridley swimming on the choppy sea surface.

7th March: Visited Pullivasal. There being no safe approach to this island, we anchored off Pulli and waded across to Pullivasal in 3 ft of water. Later in the day it was high tide and I got a soaking. Women were wading in the seaward reef, looking for sea-weed. The protected status of the island did not deter them. On the island, a Ridley carapace and a fresh *Chelonia* carcass were seen.

8th March: Visited Mulli, Valai and Talairiyer. Saw a waterspout near Mulli (a mild tornado). At Talairiyer there was a dead Ridley. On the way back to Mandapam Camp, saw two dugongs on the sea surface; they dived when our launch approached to within 50 mts of them.